October 16, 2012

Jeff Sawyer
Environmental & Hydraulic Manager
Olympic Region, WSDOT
PO Box 47417
Olympia, WA 98504

Re: SR 162/6 Puyallup River (McMillin) Bridge-New Adjacent Bridge-Section 106 Consultation

Dear Mr. Sawyer:

Thank you for your response of October 04, 2012 to my message of September 24, 2012 regarding floodwater flows of the Puyallup River under the span of the McMillin Bridge.

I cannot speak for the other Consulting Parties, but I know they share my appreciation for your assessment and concurrence that the McMillin Bridge has no significant backwater flooding effect upstream of the site. May I clarify that the clear opening of the river channel between the McMillin piers is 163.5 feet, and not 160 feet as noted in your response. WSDOT has agreed with this dimension.

You also brought to my attention the design of the span length for the new, adjacent bridge, described in the "Site and Reach Assessment" (SRA) prepared, October 2007, by WSDOT's Hydrologist, Mr. Rob Schanz. In my letter of August 10, 2011, page 2, to Steve Fuchs, I questioned why WSDOT did not follow the recommendations of its own Site and Reach Assessment Report. A single span of 200 feet was recommended. The report stated this length would span the entire mapped 100-year floodplain and "…maintain the existing level of floodplain connectivity beneath the bridge by spanning a low terrace on the left bank." I wish to comment, however, that the new bridge design is using only a span of 160 feet to cross the river and results in the column at Pier 2 encroaching in the wetted perimeter of the stream at flood stage. Please see the attached drawing that basically illustrates the same cross section shown on WSDOT's Bridge Sheet No. 1, furnished by Steve Fuchs on 09-21-12. This causes a constriction and turbulence in the floodway flows. Even at normal high water it appears to be in the wetted perimeter, but I cannot be certain with the data available. I believe this encroachment does not meet the requirements of agencies such as the Puyallup Indian Tribe, the Pierce County Public Works and the Corps of Engineers. Have those agencies given final approval to this modified configuration?

In selecting the span configuration for the new bridge it must be recognized that the existing McMillin Bridge will remain in place. Mr. Schanz stated: "If the bridge [McMillin Bridge] is replaced at the current location, most floodplain impacts can be avoided by **replicating the existing total bridge length.** A single span of 200 feet (the maximum for conventional girders) would reach from the top of the right bank to the landward edge of a low terrace on the left bank.

This would span the entire mapped 100-year floodplain and avoid new fill within the flood hazard area. It would also maintain the existing level of floodplain connectivity beneath the bridge by spanning a low terrace on the left bank. Some additional fill may be needed on the upper portion of the left bank to connect with the existing roadbed, but this would occur well above the 100-year flood elevation." I realize this was intended as a recommendation by Mr. Schanz, subject to development by the WSDOT team. However, the selection of a two span bridge with spans of 110 and 160 feet is completely different than his recommendation. I also recognize that the Site and Reach Assessment report is a draft and is supposed to be finalized after the final bridge configuration is developed. There needs to be an explanation why the recommendation by Mr. Schanz for the 200 foot span has been so drastically modified. Further, adding the 110 foot span instead of using the recommended placement of fill material, will increase the cost of the new bridge, and have significant long term costs for structural inspections and bridge preservation. Fill material is necessary anyway for the roadway approaches to the bridge, so it seems reasonable to follow Mr. Schanz's recommendation. Most important, however, the configuration has not resulted in fulfilling the hydrological requirements of avoiding a pier within the wetted perimeter of the river.

I realize that using a 200 foot long precast, prestressed girder, is near the structural limitations for that type of span configuration. However, it appears the column at Pier 2 could be located about another 10 feet landward to avoid any impacts to the active channel. This would be very practicable, would provide a 170-foot span, the same as the McMillin Bridge, and conform to the recommendation by Mr. Schanz.

You also enclosed a copy of a Federal Emergency Management Agency (FEMA) mapping document and stated that the Puyallup River is constrained at this location by both the State Route 162 and Foot Hills Trail Bridge. Perhaps you could provide a more clear explanation for your bringing this map to my attention. First of all, it does not have an effective date shown. Next it states: "It does not necessarily identify all areas subject to flooding…" Further, it does not agree with WSDOT's Site and Reach Assessment, and I do not find that map included in the SRA report. On page 2 of the SRA it states: "A levee on the left bank ties into the downstream side of the SR 162 embankment." On the FEMA map a levee is not identified on the left bank until approximately 2000 feet downstream, well past the confluence with the Carbon River. I am more inclined to believe the data furnished by Mr. Schanz. However, I note a statement that I believe should be clarified. On page 16 of the SRA he states: "The elevated SR162 and Burlington Northern Bridge approaches create a pinch point that confines the flood plain to a 160 –foot wide band that passes beneath the bridges." WSDOT has agreed with my analysis that the Foothills Bridge has a clear opening of 145.5 feet, whereas the McMillin Bridge has a clear opening of 163.5 feet. The Foothills Bridge has an opening 18 feet less than the McMillin Bridge. Since the Foothills Bridge is upstream from the McMillin Bridge, please clarify how that constraint is related to the McMillin Bridge and how one could conclude that the McMillin Bridge constrains the flow of the river.

When discussing the floodway in the vicinity of the SR 162 crossing, it would be desirable for the SRA to distinguish the difference between the impacts related to the Foothills Bridge and the McMillin Bridge. For example, the SRA identifies the severe, February1996, flooding conditions, 150 feet upstream of the "bridge." That would mean upstream from the Foothills Bridge, the pinch point, not the McMillin Bridge. I'm sure this data, along with the discussion of the bridge spans of the new, adjacent bridge, will be included and clarified in the final version of the SRA.

The Site and Reach Assessment identifies the levee system that is in place, and establishes the channel that controls the flow of the Puyallup River in the vicinity of the SR 162 crossing. In your October 4th email, you describe that levee system as a constraint to the river flow: "These constraints taken together serve to isolate the River from its natural floodplain and are a noted point of concern to agencies responsible for planning and response to flooding in the Puyallup River basin, especially, Pierce County Public Works and the US Army Corps of Engineers." I do not understand the purpose of this statement. I am fully aware of these concerns and responsibilities. The parties and I are most sensitive towards giving proper consideration to the levees. After all, isn't that the purpose of levees to create an embankment, or constraint, for protection against floods? However, placing restrictions in the channel that influence flooding is contrary to WSDOT's policy of introducing new obstructions in the floodplain. I believe it is my professional responsibility to bring to the attention of all agencies and parties the issue of constructing a pier in the wetted perimeter of the Puyallup River when it is unnecessary, and can be easily avoided. Is the cost-saving of building a shorter span with a pier in the floodplain of greater importance than keeping an obstruction out of the floodplain?

I will be looking forward to your response to the above concerns and the final report of the Site and Reach Assessment. I assume that the final report will be distributed to all participating agencies and parties for review and approval of the location of the piers. Please provide a time estimate when we may expect to receive the revised report.

Respectfully yours,

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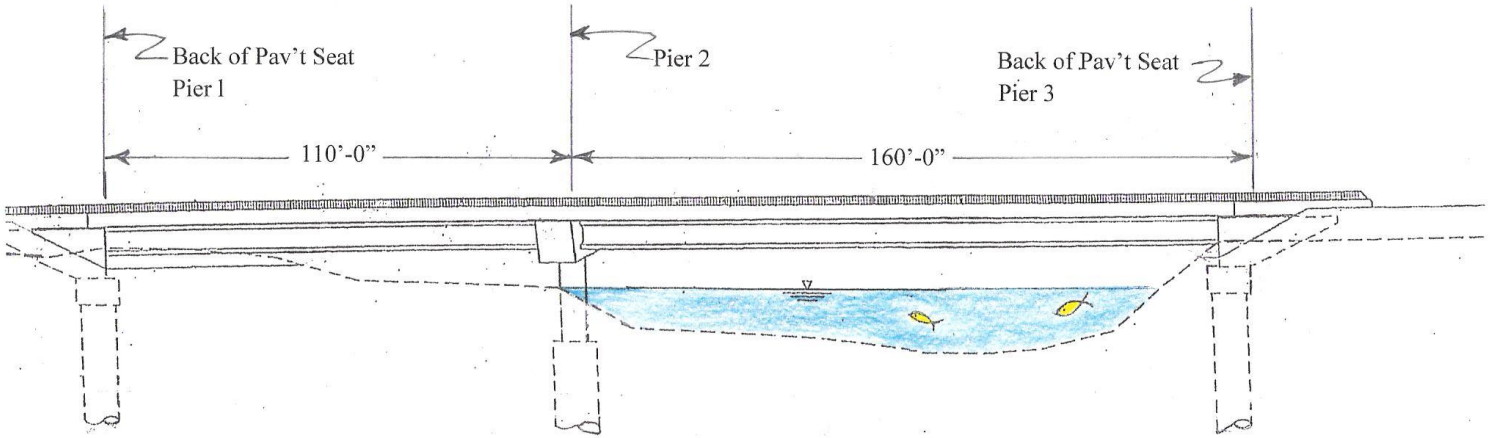
Cc: Sandra Manning, US Army Corps of Engineers

New Puyallup River Bridge

ADJACENT TO THE McMILLIN BRIDGE

Bridge No 162/6

FLOOD STAGE 100 YEAR M.R.I.
WATER SURFACE ELEVATION 124.0



Datum: NAVD 88
Data from WSDOT
Prepared by R.H.Krier (CE&SE)
10-12-12